Docket No.: 1817-0116P
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Emmet H. ANDREWS

Application No.: 09/985,863 Confirmation No.: 4454

Filed: November 6, 2001 Art Unit: 3731

For: A SURGICAL FORCEPS Examiner: S. K. Webb

CLAIM FOR PRIORITY AND SUBMISSION OF DOCUMENTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant hereby claims priority under 35 U.S.C. 119 based on the following prior foreign application filed in the following foreign country on the date indicated:

Country	Application No.	Date
Ireland	S1999/0374	May 7, 1999

In support of this claim, a certified copy of the said original foreign application is filed herewith.

Dated: November 13, 2006

Respectfully submitted,

By James T. Eller, Jr.
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Application No.
09/985863

BSKB
703 205 8000

Patents Office
Government Buildings
Hebron Road
Kilkenny

I HEREBY CERTIFY that annexed hereto is a true copy of documents filed in connection with the following patent application:

Application No.	S1999/0374
Date of Filing	7 May 1999
Applicant	EMMET JOSEPH HOWARD PETER ANDREWS, an Irish citizen of 28 Pheasant Walk, Collins Avenue, Waterford, Ireland.

Dated this 26 day of October 2006.

CERTIFIED COPY OF PRIORITY DOCUMENT

An officer authorised by the
Controller of Patents, Designs and Trademarks.

FORM NO. 1

REQUEST FOR THE GRANT OF A PATENT

90374

PATENTS ACT 1992

The Applicant(s) named herein hereby request(s)
[ ] the grant of a patent under Part II of the Act
[X] the grant of a short-term patent under Part III of the Act
on the basis of the information furnished hereunder.

1. Applicant(s)

ANDREWS Emmet Joseph Howard Peter
28 Pheasant Walk
Collins Avenue
Waterford
Ireland
an Irish Citizen

2. Title of Invention
A medical apparatus

3. Declaration of Priority on basis of previously filed application(s) for same invention (Sections 25 & 26)

Previous Filing Date	Country in or for which filed	Filing No.

4. Identification of Inventor(s)

Name(s) and addresse(s) of person(s) believed by the Applicant(s) to be the inventor(s)
Emmet Joseph Howard Peter Andrews
an Irish Citizen of 28 Pheasant Walk, Collins Avenue, Waterford, Ireland

5. Statement of right to be granted a patent (Section 17(2) (b))

Not Applicable

6. Items accompanying this Request

(i)	[X]	prescribed filing fee (IRP 50)
(ii)	[ ]	specification containing a description and claims
	[X]	specification containing a description only
	[X]	Drawings referred to in description or claims
(iii)	[ ]	An abstract
(iv)	[ ]	Copy of previous application(s) whose priority is claimed
(v)	[ ]	Translation of previous application whose priority is claimed
(vi)	[X]	Authorisation of Agent (this may be given at 8 below if this Request is signed by the Applicant(s))

7. Divisional Application(s)
The following information is applicable to the present application which is made under Section 24 -

Earlier Application No.
Filing Date:

8. Agent

The following is authorised to act as agent in all proceedings connected with the obtaining of a patent to which this request relates and in relation to any patent granted -

Name & Address

Cruickshank & Co. at their address recorded for the time being in the Register of Patent Agents is hereby appointed Agents and address for service, presently 1 Holles Street, Dublin 2.

9. Address for service (if different from that at 8)

Signed Cruickshank & Co.

By:- Executive.

Agents for the Applicant

Date May 07, 1999.

"A Medical Apparatus"

Introduction

The present invention relates to a construction of forceps and in particular to a construction of forceps for the insertion of intercostal chest drains and the like into patients.

Collapse of the lung is a serious condition and can often arise due to an injury to the chest. The lung collapses under the pressure of air or blood leakage into the space between the lung and the inside of the chest wall. This usually arises in a state of emergency such as immediately after an accident and therefore requires urgent treatment.

The treatment is the insertion of a chest drain between the ribs into the chest cavity. The drain is essentially a flexible plastic tube with a hole at the tip and perforations on either side adjacent the tip. Insertion of the drain is a difficult and hazardous job. It can be performed in several ways. One is by means of a trocar which is a metal rod with a sharp tip that is mounted within the drain having a sharp tip and projects out the hole in the top of the drain for about 5mm. The trocar is used to force the drain into the chest cavity by piercing through the intercostal muscles. This is a dangerous method of inserting the drain as it is possible to overshoot too deeply into the chest cavity and damage other organs such as the heart, or the large arteries or veins of the chest. Due to these potential lethal hazards the use of the trocar is greatly discouraged.

The recommended method of introduction of the drain is by what is commonly known as the "open technique". This involves the use of a surgical forceps which is a general purpose instrument used in surgery for many different tasks. The forceps is used to separate the muscle fibres situated between the ribs to create a channel for the drain. The drain is then passed through the channel without the use of the trocar. Making the channel with the forceps is no easy task nor indeed is the subsequent manipulation of the drain into position.

While this latter open method is much safer than the use of a trocar, it has many difficulties and limitations. The two major problem areas are the creation of the channel and alignment of the drain to it. These stem from the fact that the forceps is not designed for this job. Indeed it is designed for the exact opposite task: that is gripping rather than separating tissue. One disadvantage is that as the tips of the forceps are blunt, considerable inward force has to be applied to penetrate the muscle causing some trauma to the area. The major disadvantage is that the forceps are designed for gripping rather than separating and therefore using them in the reverse mode to separate the muscle does not provide optimum power or manipulation. Thus, it requires several spreading actions to create an adequate channel through the muscle leading to excess damage and trauma to the muscle.

When the forceps has formed the required channel, it is then necessary to maintain the channel open with the forceps as the drain is inserted through the muscle channel into the chest cavity. This leads to the second major problem with the current methods: alignment of the drain to the channel. The tip of the drain has now to be inserted and aligned with the channel which is effectively occupied mainly by the forceps. It is always difficult to thread the drain through the remaining part of the channel along the forceps. The safest way that this is done is by using a second forceps to grip the drain and force it through. This in turn causes damage to the drain and an even wider channel to be made.

A further problem of removing the forceps and positioning the drain into the correct position is then encountered. When two forceps are used, pulling out either of the forceps in the tight confined space of the muscle channel may inadvertently dislodge the drain. The drain is required to be positioned either upward to drain air or downward to drain blood or fluid as indicated. This task is difficult with the limitations of the forceps to direct the drain once inside the chest cavity.

In summary, trocars, though reasonably efficient in operation, are dangerous especially in emergencies where medical personnel are under stress or are working in less than ideal conditions. The trocar can be positively lethal. The use of a surgical forceps to insert the chest drain is a safer method of carrying out the procedure but is inefficient and is associated with many difficulties and problems such as those referred

to above.

The present invention is directed towards providing an improved method and apparatus for the insertion of an intercostal chest drain or the like device into the bodies of mammals.

Statements of Invention

According to the invention there is provided a surgical forceps of the type comprising a scissors-like implement having a pair of blades connected by a pivot pin and extending rearwardly thereof to form handles characterised in that each blade and its handle is cranked adjacent where it is pivoted whereby the handles are splayed apart with the blades in engagement. In this way the optimum force can be exerted by a user on the handles to provide a separating action and the handles are in the correct position for allowing the blades to be splayed apart, for example, for the insertion of an intercostal drain.

Ideally the handles are spring urged apart and in this way the blades will always come together when force is relieved from the handles. Ideally, each blade is of an arcuate shape having an open mouth which faces the open mouth of the other blade. This enables the forceps to produce a more accurately and appropriately shaped channel and facilitates the insertion of the chest drain.

In one embodiment of the invention there is provided a third guide blade carrying the pivot and spaced below the other two blades. The advantage of using a third blade is that, for example, the third blade can be used to guide the forceps on top of a rib into the chest cavity thereby avoiding injury to the blood vessels that run just below each rib. It also provides direction for the drain through the muscle channel into the chest cavity and also directs the drain in the appropriate position once in the chest. In a still further embodiment of the invention, there is provided grip means on the forceps to carry an intercostal drain. Ideally, the grip means is mounted on the guide blade.

Detailed Description of the Invention

The invention will be more clearly understood from the following description of an embodiment thereof given by way of example only with reference to the accompanying drawings in which:

Fig. 1 is a plan view in the closed position of a surgical forceps according to the present invention;

Fig. 2 is a plan view of the forceps in the open position;

Fig. 3 is a side view of the forceps carrying the chest drain;

Fig. 4 is a detailed side view of portion of the forceps in the direction of the arrow A of Fig. 1;

Fig. 5 is a perspective view again in the direction of the arrow A of Fig. 1; and

Fig. 6 is a sectional view along the lines VI-VI of Fig. 2.

Referring to the drawings there is provided a surgical forceps indicated generally by the reference numeral 1 having a pair of curved blades 2 extending rearwardly to form integral handles 3. The blades 2 are mounted together by a pivot pin 4 on a further guide blade 5. The guide blade 5 carries leaf springs 6 which engage the handles 3 to force the blades into the closed position as can be seen in Fig. 1. The guide blade 5 extends rearwardly to form bifurcated arms 7 each carrying an arcuate drain grip 8. It will be noted that the bifurcated arms 7 cross intermediate their ends at 9.

Referring to Fig. 3 there is illustrated a conventional intercostal chest drain indicated generally by the reference numeral 10 mounted between the arcuate drain grips 8 on the bifurcated arms 7. Because the bifurcated arms 7 cross, the grips 8 exert a gripping action on the intercostal chest drain 8.

In operation it will be appreciated that the drain 10 can be placed at any time, and therefore secured in position, on the arcuate drain grips 8 and the guide blade 3 and blades 2 in the position illustrated in Fig. 1 can be inserted into the intercostal muscle of a patient. The handles 3 can be manipulated to separate the curved blades 2 thus creating the channel through the muscle for the drain. Meanwhile the guide blade 5, which will be held stationary by the leaf springs 6, forms a guide for the forceps. Thus, the forceps can be inserted generally into the chest cavity. Essentially it will be appreciated that the blades 2 provide the separating action to split the muscle and their curvature along the inside of their length creates a hollow centre. A circular conduit or channel of the appropriate size is therefore provided for easy passage of the drain 10.

The advantage of the guide blade is that not alone does it provide a guide for the forceps but it also directs the drain, which is held in alignment along the guide blade by the arcuate drain grips, directly through the channel. Since the drain can be carried on the guide blade as the bore is formed, there is no need to further manipulate or align the drain. When the drain is inserted into the chest cavity then the arcuate drain grips can be easily disengaged to allow the forceps to be disconnected and removed from the muscle channel without disturbing the position of the drain. One of the major advantages of the third blade is that it allows the forceps to be positioned over the apex of the rib so preventing the other blades from damaging blood vessels that are sited just below each rib.

However, one of the most important features of the present invention is that since the handles operate the blades in the same direction they are much easier to manipulate than the conventional forceps.

In the specification the terms "comprise", "comprises", "comprised" and "comprising" or any variation thereof and the terms "include", "includes", "included" and "including" or any variation thereof are considered to be totally interchangeable and they should all be afforded the widest possible interpretation and vice versa.

The invention is not limited to the embodiments hereinbefore described but may be varied in both construction and detail.

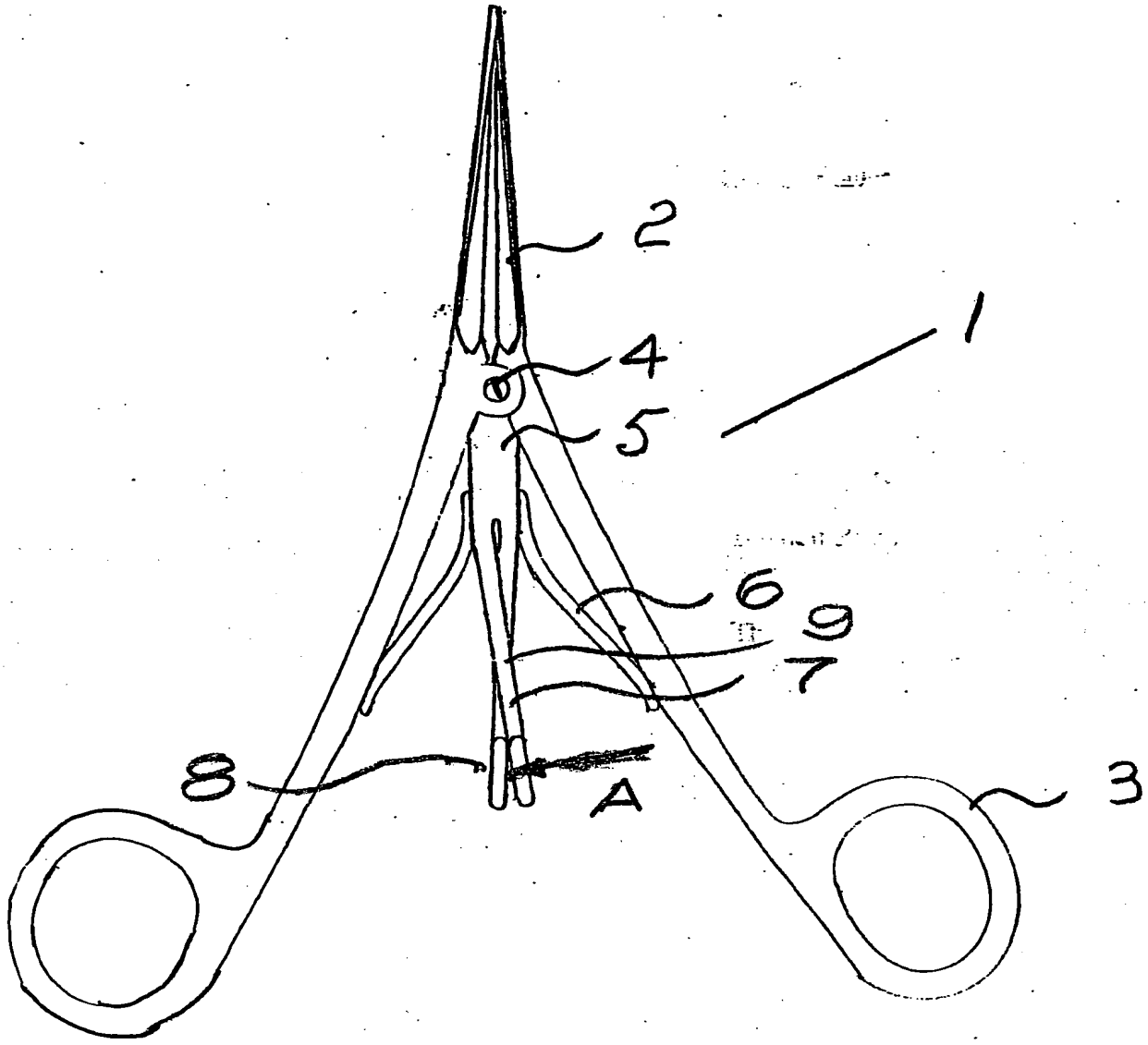

FIG 1

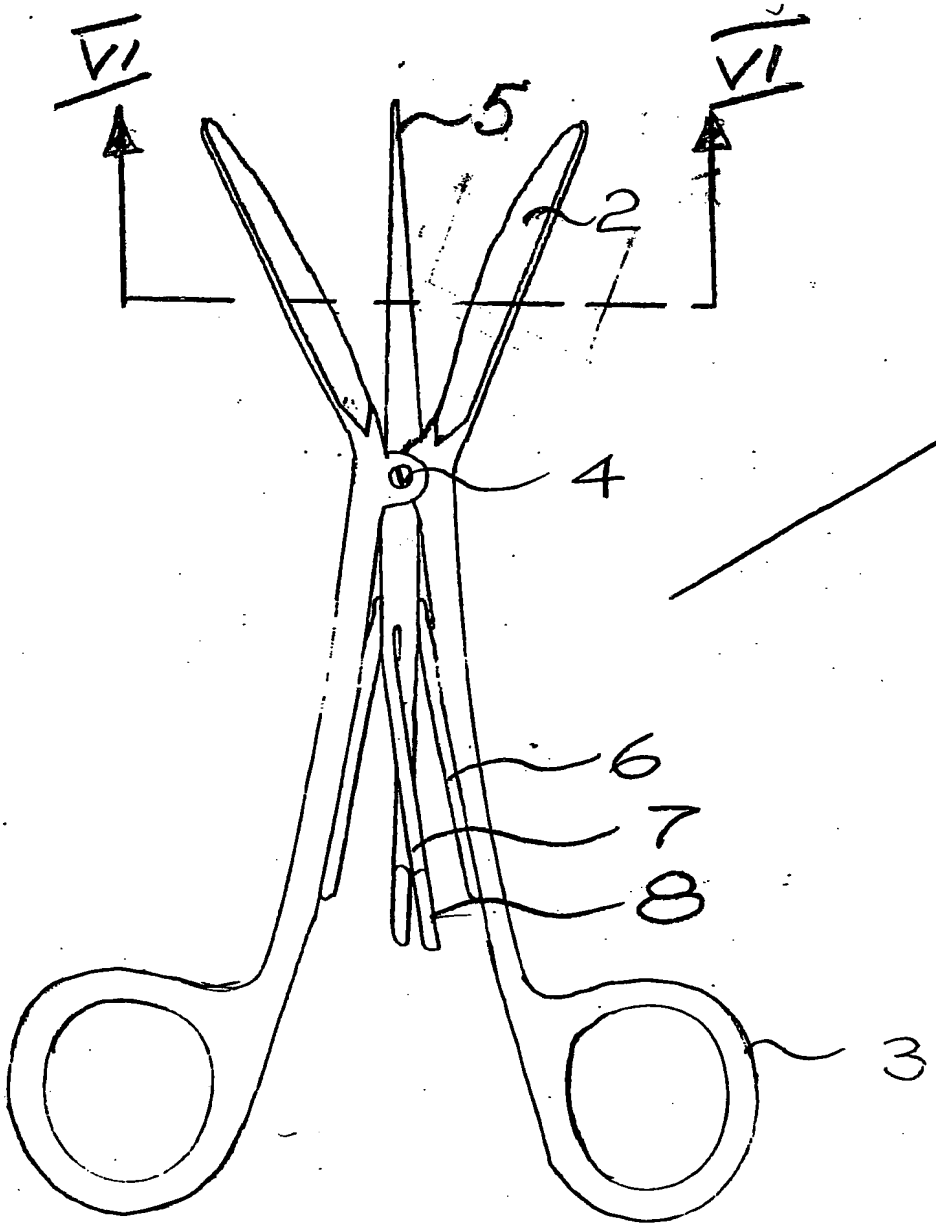

FIG 2

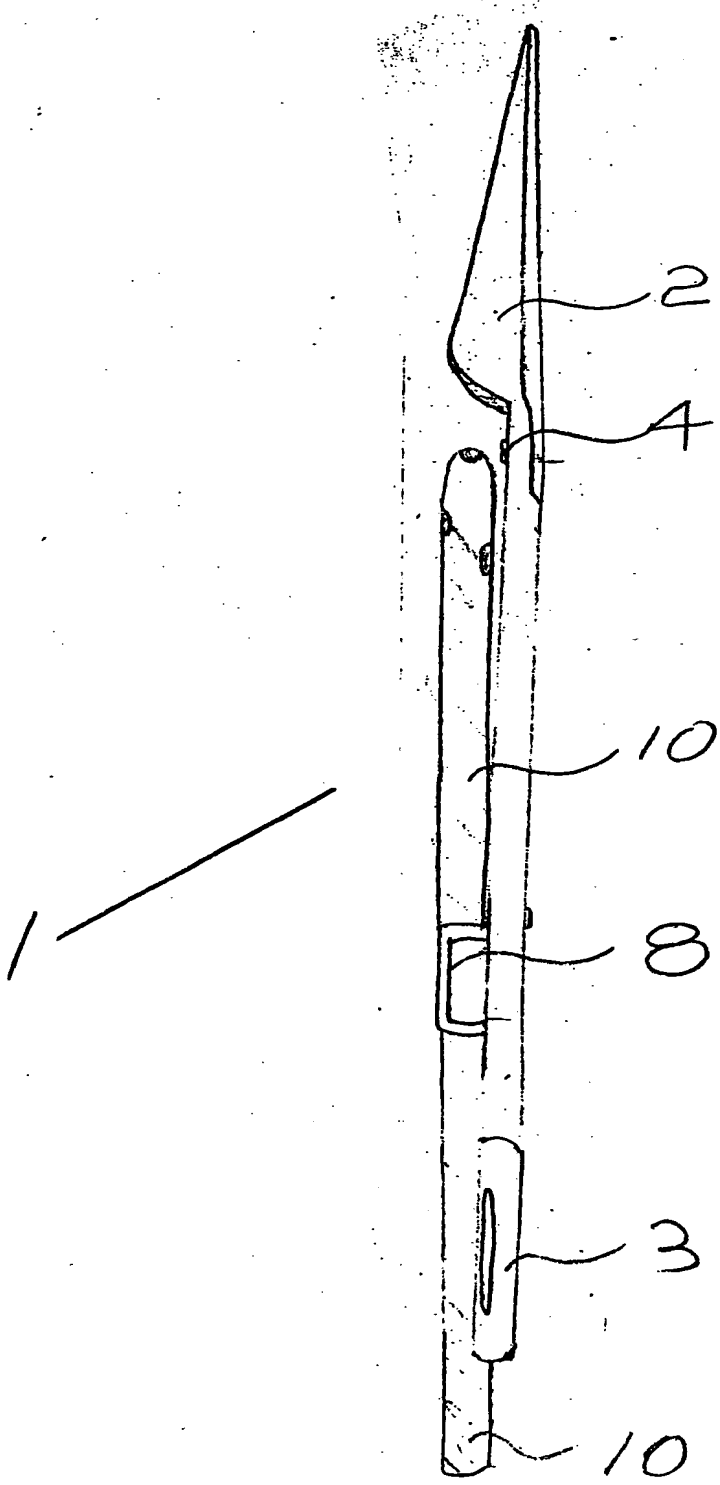

FIG 3

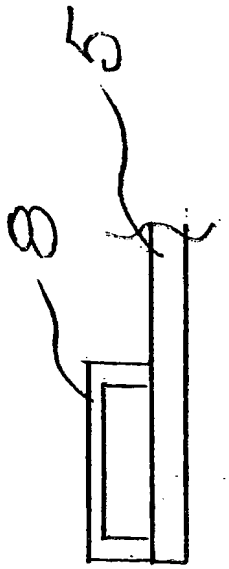

FIG 4

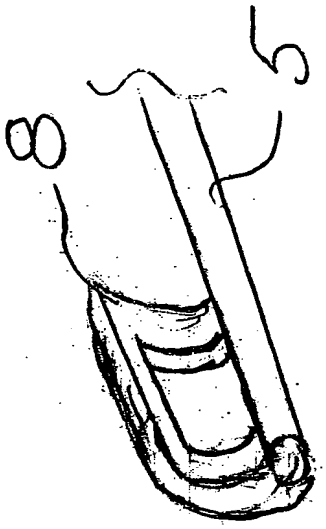

FIG 5

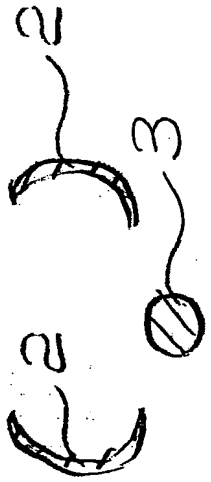

FIG 6